



Global Earth Observation System of Systems (GEOSS)



What is requested? The Group on Earth Observations (GEO) was established in July 2003 to begin development of the Global Earth Observation System of Systems (GEOSS). GEO is an international partnership espousing the free exchange of Earth observational data. The US participates in GEO and GEOSS through the Interagency Working Group on Earth Observations (IWGEO), a collection of 15 Federal agencies that either supply or use observational data. NOAA, a key member of IWGEO, is committed to making its Earth observation data interoperable with external entities via the IWGEO and worldwide through participation in the GEOSS.

What are the benefits? Understanding the Earth system—its weather, climate, oceans, atmosphere, water, land, geodynamics, natural resources, ecosystems, and natural and human-induced hazards—is crucial to enhancing human health, safety and welfare, alleviating human suffering including poverty, protecting the global environment, reducing disaster losses, and achieving sustainable development. Observations of the Earth system constitute critical input for advancing this understanding. GEOSS builds on and adds value to existing Earth observation systems by coordinating their efforts, addressing critical gaps, supporting their interoperability, sharing information, reaching a common understanding of user requirements and improving delivery of information to users.

The purpose of GEOSS is to achieve comprehensive, coordinated and sustained observations of the Earth system, in order to improve monitoring of the state of the Earth, increase understanding of Earth processes, and enhance prediction of the behavior of the Earth system. The benefits to society have been initially categorized into nine areas:

- Reducing loss of life and property from natural and human-induced disasters
- Understanding environmental factors affecting human health and well being
- Improving management of energy resources
- Understanding, assessing, predicting, mitigating, and adapting to climate variability and change
- Improving water resource management through better understanding of the water cycle
- Improving weather information, forecasting, and warning
- Improving the management and protection of terrestrial, coastal, and marine ecosystems
- Supporting sustainable agriculture and combating desertification
- Understanding, monitoring, and conserving biodiversity

Why do we need it? Sound management of the Earth system, in both its natural and human aspects, requires information that is timely, of known quality, long-term, and global. Ensuring that such information is available to those who need it is a function of governments and institutions at all levels. Despite laudable efforts, the current situation with respect to the availability of Earth observations is not optimal, as there are large spatial and temporal gaps in data coverage. Moreover, the existing observational infrastructure is eroding, with inadequate long-term data archiving, and no assured continuity for many systems. Consequently, targeted collective action is needed to bring observing systems in line with the requirements for addressing the range of issues of concern to society.

What will we do? NOAA supports the data sharing goals of the GEO and IWGEO. We are achieving some near-term successes in limited integration with other systems, and we are drafting future systems integration requirements, which will directly affect how data is distributed to and from NOAA and external entities.

For additional information please contact:

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